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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,145	03/29/2004	Dae-sik Kim	Q74902	1116

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
BLACKMAN, ROCHELLE ANN J	
ART UNIT	**PAPER NUMBER**
2851	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/811,145	KIM ET AL.	
	Examiner	Art Unit	
	Rochelle Blackman	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/25/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11, 13, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lambert (U.S. Patent No. 6,288,815).

Regarding claim 1, Lambert discloses a projection system (see FIGS. 1-9), comprising: a light source (see 16 and *WHITE LIGHT* in FIG. 3); a color scanner including a scrolling unit (see 20 of FIG. 3, 30 of FIG. 7A, 32 of FIG. 7B, and 40 of FIG. 7C in FIG. 3) and a driving source (although not shown, the "projection system" is considered to have some sort of motor, solenoid, or actuator that rotates the "scrolling unit") for rotating the scrolling unit so that a plurality of color bars are scrolled, wherein the scrolling unit includes at least one lens cell (see 24, 25 of FIG. 3; 31 of FIG. 7A; 33 of FIG. 7B; 41 of FIG. 7C; and 42, 43 of FIG, 7D) and converts a rotation of the at least one lens cell into a rectilinear motion of a lens array of the scrolling unit through which light passes; a light valve (see 17 of FIG. 3 and *single light valve* in col. 4, lines 15-17, output 17 is considered to be directed to a light valve of some sort), which electrically scans the plurality of color bars according to an input image signal; and a control circuit (although not shown, the "projection system" is considered to have some sort of

controller or control circuit that controls the scan function of the "scrolling unit" to create the output 17 which is direct to the light valve), which renders optical scanning of at least one of a plurality of color bars in phase with electrical scanning of the light valve by an image signal, wherein the color bars are formed on the light valve due to a rotation of the scrolling unit.

Regarding claim 2, Lambert discloses a color separator (see *DICHROIC CUBE* in FIG. 3) which separates light from said light source according to color.

Regarding claim 3, Lambert discloses wherein the control circuit comprises a driving source controller (although not shown, the control circuit is considered to have some sort or controller that controls the motor, solenoid, or actuator that rotates "scrolling unit") which controls the driving source so that the optical scanning of the at least one color bar is in phase with the electrical scanning by changing a rotation of the driving source according to a phase offset value which represents a phase difference between the optical scanning and the electrical scanning (see col. 9, lines 48-56).

Regarding claim 4, Lambert discloses wherein: the control circuit further comprises a reference phase generator (see col. 9, lines 48-56 – the "control circuit" is consider to have some sort of "reference phase generator" because a phase pre-correction obtained) which generates a reference phase signal and provides the reference phase signal to the light valve; and the electrical scanning of the light valve is performed based on the reference phase signal, and the phase offset value is determined based on the reference phase signal (see col. 12, lines 28-41 - "electrical

scanning", and "phase offset value" are considered to be performed and computed when executing the given formula).

Regarding claim 5, Lambert discloses wherein the phase offset value is determined by the steps of: providing an electrical scanning including image information for all colors to the light valve based on the reference phase signal; scanning the plurality of color bars on the light valve based on the reference phase signal; and adjusting phases of scanning of the color bars on the light valve until a bar of a specific color bar is modulated by only image information corresponding to the specific color (see col. 12, lines 28-41 – the steps are considered be performed when executing the given formula).

Regarding claim 6-8, Lambert discloses wherein the phase offset value is stored in a non-volatile memory accessible by the controller (although not shown, the phase offset value would have to be stored in a "non-volatile memory" in order to retain the values used in the formula in col. 12, lines 28-41).

Regarding claim 9, Lambert discloses wherein: the scrolling unit has a plurality of lens cells spirally formed thereon (see 33 of FIG. 7B; and 42, 43 of FIG. 7D).

Regarding claim 10, Lambert discloses wherein the at least one lens cell of the scrolling unit is a cylindrical lens (see 24, 25 of FIG. 3; 31 of FIG. 7A; 33 of FIG. 7B; 41 of FIG. 7C; and 42, 43 of FIG, 7D).

Regarding claim 11, Lambert discloses wherein the scrolling unit is a disk (see 32 of FIG. 7B).

Regarding claim 13, Lambert discloses wherein the plurality of color bars are scrolled by a rotation of the scrolling unit by the driving source such that when the scrolling unit rotates, a lens array of lens cells through which light passes appears to move rectilinearly in a direction toward or away from a rotation center of the scrolling unit (see 32 of FIG. 7B, when 32 is rotated, lens cell 33 will "appear to move rectilinearly in a direction toward or away from a rotation center of the scrolling unit 32).

Regarding claim 17, Lambert discloses a plurality of cylindrical lenses (see 22 and 23 of FIG. 3), disposed respectively in front of and behind the scrolling unit so as to adjust the width of a light beam incident upon the scrolling unit.

Regarding claim 18, Lambert discloses a color separator (see *DICHROIC CUBE* in FIG. 3) which separates a light beam emitted from the light source into a plurality of color beams by selectively reflecting the light beam according to wavelength.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert (U.S. Patent No. 6,288,815) in view of Bierhuzen et al. (U.S. Patent No. 6,839,095).

Lambert discloses the claimed invention except for "first and second fly-eye lens arrays sequentially disposed on a light path between the scrolling unit and the light valve and which each comprising a plurality of lens cells which correspond one-to-one with the lens cells of the scrolling unit; and a relay lens which is installed between the second fly-eye lens and the light valve and which transmits light beams passed through the second fly-eye lens so that light beams of different colors are focused on different locations of the light valve."

Bierhuzen discloses first and second fly-eye lens arrays (see 120 and 122 of FIGURE 7) sequentially disposed on a light path between the scrolling unit and the light valve and which each comprising a plurality of lens cells which correspond one-to-one with the lens cells of the scrolling unit; and a relay lens (see 128 of FIGURE 7) which is installed between the second fly-eye lens and the light valve and which transmits light beams passed through the second fly-eye lens so that light beams of different colors are focused on different locations of the light valve.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the "projection system" of the Lambert reference with first and second fly-eye lens arrays and a relay lens, as taught by Bierhuzen in order to improve light collection efficiency from the light source (see col. 11, lines 13-15).

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert (U.S. Patent No. 6,288,815) in view of Dewald (U.S. Patent Application Publication No. 2002/0135862).

Lambert discloses the claimed invention including discloses a scrolling unit comprising 2 spiral lens cells (see 33 of FIG. 7B and 42, 43 of FIG. 7D).

Lambert does not appear to disclose the scrolling unit having "at least 4" spiral lens cells.

Dewald teaches providing at least 4 spiral segments (see 502-508 of FIG. 5) of a color wheel that correspond to a light valve or spatial light modulator (see 500 of FIG. 5).

It would have been obvious to one ordinary skill in the art at the time the invention was made to provide the scrolling unit of the Lambert reference with 4 spiral lens, in order to allow efficient use of a light valve having row addressed modulators (see pg. 2-3, paragraph [0029]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rochelle Blackman whose telephone number is (571) 272-2113. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RB

JUDY NGUYEN
SUPERVISORY PATENT EXAMINER